

Wandering Towards a Goal; has the Universe any purpose ?

02/172017 Karoly Kehrer Jr.

Is goal-oriented behavior a physical or cosmic trend, an accident or an imperative?**Abstract.**

The development of the world-view with the help of physicist is discussed. An investigation to try to find answer of how causality, witnessing biological creation and theological influence affected Human thinking and inspired them to try to find the purpose of life in a limitless Universe. The essay also want to find an answer of why an inanimate word would have any **goal** regardless of having a limited size or being endless, and whether it harbors life or not.

Key words: Universe, world-view, probabilistic causality, evolution, natural selection, **goal and purpose**.

Changing world view

In the last ~3.5 million years the Human world view has drastically changed from the limited horizon that was seen from the trees, to trying to comprehend the observable Universe.[1] During this short period of time countless **theories were** created, armies of different supernatural creatures were invoked hoping they would explain the unexplainables. Humans turned to the Sumerian gods, [2] Egyptian Sun Gods and the Hebrew God for answers, and the western culture finally accepted a creation theory that said that the world was “created” approximately 4500 years ago, it took only a short six days; and on the last day the Human race were created and shaped to God's image. [3]

All these theories were baseless speculations, trying to explain Human's relation to their surroundings. The over-sized Human brain, being capable looking for answers for an all important question of **WHY**, settled on the answer that all things they didn't understood, or could not find an answer to, were the doings of supernatural **almighty** gods.

Among many other reasons of why Humans believes in the existence of gods, their **Goal and purpose**, because for eons they had experienced the role of casualty [4] and seen countless biological creations all around them. Their feeling was strongly reinforced by **theological** teaching and by the promise that death is not the end of the life. Their soul will live for ever.

Anything that is being created on the Earth exists and die. Regardless of religious or pragmatic approach, these limitless examples affected Human thinking as did the chain of the events which always seems to have a cause before effect, and thereby setting the arrow of time in the Human mind from past to future. As it has turned out, however, it seems to be in conflict with Quantum Mechanics [5] and the governing equations of the orbiting planets, regardless whether it is played forward or backward in time the same rules apply.

By setting the arrow of time, and recognizing the rule of causality, reinforced by the [theological teaching](#) [6] which suggests that nature is **goal-oriented**. This believe fits very well to the work of the human brain. Only Humans have **goals** in the animate world, like getting the necessary food, have a pleasant and safe life, and they usually reach these **goals** at the cost of their fellow humans. Well, all living creatures on Earth have the same goal, but they don't have an over-sized brain to recognize it. Only self conscious creatures are able to do it.

Over countless millennia theological teachings became dogmas; and questioning their validity was punishable by death. A sad example is the fate of [Giordano Bruno](#) [7] who was burned alive at the stake for challenging the teaching of the Church about their geocentric dogma and was brave to say, that it is the Earth that orbits the Sun. His statement ran against the daily expedience of millions who seen the Sun coming up and going down in the evening (to get some rest), therefore everybody believed in the Church's teaching.

Regardless of the terrible threat of being burned alive, it was [Galileo](#) who pioneered the observations of nature and it had a long-lasting implications for the study of physics. He also constructed a telescope and supported the Copernican theory, of a Sun-centered solar system.[8] Galileo was accused twice of heresy by the church for his beliefs, but regardless of this he wrote books on his ideas.

He was the first in history who saw - by using his telescope January 7, 1610 - three small bodies circling around Jupiter. He called them Medici planets after the ruling Medici family of Tuscany. He began measuring natural phenomenons instead of making **theories about theories**. He succeeded - based on the results of his testing - to understand the behavior of falling object, and was able to formulate the governing equations of gravity's effect on materials. For the heresy of telling that Earth does the same, that is, orbiting the Sun like the moons orbiting Jupiter, he was imprisoned for life. After the threat of torture he admitted that the Church was right an he was wrong, but is still the Earth that moves, he said under his breath.

Changing the world-view was a long and sometimes terrible painful process.

Today we rightly honor Galileo as the father of science.

His approach, finding answers to the problems combined with the force of mathematics provided Humanity with a powerful tool that can record and keep the test results of the experiments. Mathematics, the King of Logic, helped mankind not only constructing the equations of the observations, but in some cases using their **predicting** power to find more rules of nature. Newton had derived the gravitational formula that was based on [Kepler's](#) observations and Galileo's experiment. [9]

What Humans have never even thought about, Plank's simplest equation [10] about the quanta $E=h*f$ revolutionized the thinking of how Nature works at the subatomic level.

Studies by [Philipp Lenard](#)[11] German-Hugrian scientrist, won the Nobel Prize for his work in 1905 for the results of his research in the late eighteenth century on [cathode rays](#), the discovery of their properties and recognising the photo-electric effect. His work along with Hertz provided the solid base for the Planck' equation.

Einstein's 1905 paper discussed the same effect in terms of light quanta. The phenomena of

the photo-electric effect finally had been confirmed by the experimental work in the nineteen twenties by [Robert Andrews Millikan](#).

Inspired by Lenard's recorded measurements and the results of his own testing, Rutherford created the first plausible atom model. Bohr established the laws of the proton electron interaction, and the strange word of quantum physics – further developed by numerous bright physicists - changed everything that Humans thought before was true.

[Heisenberg](#)'s uncertainty principle put an end to all speculations arguing that the Universe might have a **goal**. [12]

Interestingly, almost all of the important researcher had and have strong conviction that an almighty Creator exists, and that **He has a GOAL**, and He created **Humanity** to fulfill **His** purposes. At the same time they believe that they have discovered may say the opposite.

An interesting exchange between two believers, [Bohr](#) and Einstein...Bohr said:

“Einstein, stop telling God what to do”.

Others like string theorist, the multiverse advocates and the believers in the holographic Universe try to tell even to the Universe of how it should be structured.

[Niels Henrik David Bohr](#) [13] was a Danish physicist who made foundational contributions to understanding atomic structure and the quantum theory, for which he received the Nobel Prize in Physics in 1922.

The changing of world view

It is fascinating of how two **theories** introduced to the public at the beginning of the twentieth century changed our world-view forever.

One was Quantum Mechanics that told us that randomness and unpredictable probability prevents any **goal**, or purpose to exist in the Universe. The deterministic theory of the 18th century thinkers became obsolete.

The other one, the **theory** of [Relativity](#), somewhat in opposition with Quantum Mechanics suggested that the behavior of the Universe and the propagation of the gravitational force could be calculated.

The foundation of the **theory** of Relativity rested on the mathematics developed by [Lorentz](#) [14] and the discovery of [Henri Poincaré](#) [15]. Jules Henri

Poincaré [15] was a French mathematician, theoretical physicist, engineer, and philosopher of science, who in 1900 found a way of combining the concepts of mass and energy. He recognized that electromagnetic energy behaves like a *fictitious fluid* with mass density of $m = E / c^2$; that is

$E=mc^2$, that along with Plank's $E=h*f$, Lorentz's equation of $\gamma=1/\text{sqr}(1-v^2/c^2)$, and Newton's gravitation formula are the four most famous equation ever had been discovered and formed our word-view.

The [Lorentz transformation](#) superseded the [Galilean transformation](#) of the [Newtonian physics](#) by questioning the **theory** of an absolute space and time. But the [Galilean relativity](#) which is true only at smaller velocities than the speed of light still being correct. (Note that in the Universe the great majority of the objects move much smaller than that of speed of light).

The Lorentz transformations introduced many unintuitive features like the fact that observers moving at different [velocities](#) measures different [distances](#), [elapsed times](#), and different [orderings of events](#), but it supposes that the speed of light is constant in all inertial reference frames.

Einstein in his 1905 paper about [Special Relativity](#) went two steps further. He postulated the strong invariance of light's speed when he rephrased the **theory** of Special Relativity [SR], while relying on all the results of Lorenz and [Poincaré](#). In addition he declared that space is empty. This assumption created an everlasting debate. His theory of General Relativity [GR] submitted to the [German Analen der physic](#) in 1916 ran into some problem, and he had to admit at the [Leiden conference](#) [16] in 1920 that GR would not work in empty space, that is, some aether like substance is needed.

*The Nobel committee never awarded the prize for his work arguing that purely **theoretical physics** is not grounded in discovery or experiment .*

The GR paper's pure mathematical approximation of how gravitational forces are transmitted set an example for mathematical physicists to formulate their **theories** based on only their mathematical predictions.

As it has been discussed earlier, mathematics is a powerful tool and has immense predictive power, but it can become a burden too, as it is shown in the unsupportable assumption of the creation of the Universe according to the “big bang” **theory**. If we believe that it has been created from a mathematical point, it might suggest that an “almighty creator” had a **goal and purpose** to do it, and if He did it why some 13 billion years ago and not earlier or later. Human logic cannot give any plausible answer about the “timing”, but still can question what was before. Well, St. Augustine a fourth century Christian philosopher whose groundbreaking philosophy infused Christian doctrine with [Neoplatonism](#) said:

“the Almighty was preparing hell for all those who wont believe in creation”.

This answer would not convince any philosophers that it has any **goal or purpose**; especially not, if one believes in an eternal Universe.

Regardless of its questionable, or rather nonexistent physical base, it created lots of **theories** which were trying to use more pure mathematical speculations for supporting an unprovable idea. Worse examples are the inflation theories by [Andrei Linde](#) and Alan Guth. [17] Further efforts were and are being made to get backward in time to the $\sim 10^{-35}$ -th second after the “big bang” and try to analyze of how the material was created from nothing, how it is looked like, and how it was behaving.

Unfortunately, recently **theories** seem to compete with one another, by publishing more and more unsupportable and non-physical speculations like, string theories and super-gravity which are valid only in 26, 10 or 11 dimensions and the proposed [holographic Universe](#) is valid only in two dimensions. [18]

Again, which of these ideas would have an answer to the question:

Is goal-oriented behavior a physical or cosmic trend, an accident or an imperative?

Well, neither the proven and successful scientific advance, nor these speculations seem to support any possible **goal or purpose**.

After this short review of the progress of physics and its effect on the world-views, one can conclude that only theological-based **theories** are trying to convince us that the existence of Humanity has some **goal and purpose**.

Since Humanity is part of the Universe, then the theological **theories** must celebrate that all the Universe must have a purpose, for it was created to be a home of the Human race.

Only very few “scientific” **theories** like the [creation of the Universe](#) by the big bang - that has no any physical base - could inadvertently suggest that some supernatural entity had done it; and if so, it should have had a **Goal to do it**.

Since the rapidly developing science shows a resounding negative result by finding no indication that the inanimate world might have any **goal or purpose**, it is worth taking a look at how it affects the Humanities's thinking about the animate creatures.

If one would ask of what separates the animate from the [inanimate](#) surrounding, one could recognize that intelligent creatures do believe in **Goal** and **purpose**. The word “**evolution**” tends to suggest the belief of some **Goal**, and along with it an existing conscious designer too; while the word's meaning of **natural selection** is considered to emphasize the existence of blind, uncaring force.

As far as our larger environment is concerned, some physical processes shows a well understood and seemingly organized path from birth to the death of stars as it is shown by the Hertzsprung Russel diagram, and supported by Bethe's model [18], but Cosmologists admit that it is only a tip of the iceberg. Theories are far from in agreement as to whether the Universe has a limited size or is limitless; is it a curved ball or flat? For example [Anna Ijjas](#) ET-all, at Pinkerton argues against the curved, ball-like cosmos.

Apart from the life-sequence of the stars and the behavior of recently discovered [Hyper-massive objects](#), the inhomogeneity of the observable Universe as yet has no clear answers. The unexplainable and highly controversial creation from nothing, - that means that the Universe was born, but will live forever cannot have a plausible explanation. There are many unanswered questions, such as the suspected but undetectable dark energy and the poorly understood hypothetical dark matter. This tells us that cosmology is far from a closed **theory**; but the trends support randomness rather than predictability.

It is obvious that living creatures can only exist in very special environments, except the most primitive life forms, those which supposedly can survive in the intergalactic space, or as it just happened can already be found active in Earth's rocks 300 meters underground. [20]

No matter what, a [dying star](#) or an exploding [Supernova](#) nearby will kill any life-form on any earth-like planets. It is not a **goal** or purpose of Mother-Nature, but a calculable certainty.

If one looks on the surface of the Moon, one can see a scary proof of random cosmic bombardment. Its surface is full of giant craters. If one studies ancient life on Earth one can find signs of several mass [extinctions](#) that can be partially attributed to random bombardments from space, and some very drastic and poorly understood change of the planet's climate.

One can only see unpredictable randomness and not any sign of **Goal** to protect and to keep the living creatures alive. Apparently life-forms exist, just as the Universe does, but their future depends on the blind and tremendous forces of Nature.

In spite of the ever present danger that life can be wiped out at any moment, creatures with over-sized brains were able to develop – and did develop – weapons powerful enough to kill all creatures on Earth including us Humans. It is strange, but unfortunately true, that the curious brain of humans constantly looking for questions of **why** things are as they are, was able to unlock the secret of the nuclear forces and have used it already in the wrong way.

There is a frequently asked question by biologists and philosophers whether there is any limit of how complex a biological entity can become? Can this terrible achievement have an answer to it, telling that natural selection can go only this far and no farther, for a biological entity with the necessary knowledge may be able - and will be able - to commit suicide? Isn't it a shocking proof that there is no life-form that has any **Goal or purpose**?

And there isn't any. Natural selection is a blind and merciless force.

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